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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,212	06/25/2003	Doh-Suk Kim		3320

7590 05/10/2007  
Docket Administrator (Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NJ 07733-3030

EXAMINER
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STORM, DONALD L

ART UNIT	PAPER NUMBER
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2626

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05/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/603,212		KIM, DOH-SUK	
	<b>Examiner</b>		<b>Art Unit</b>	
	Donald L. Storm		2626	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-25 and 35-38 is/are rejected.
- 7) ☒ Claim(s) 21-34 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Allowable Subject Matter*

2. Claims 26-34 and 39 would be allowable over the prior art of record if rewritten to include all of the limitations of the base claim and any intervening claims. The whole structure and interaction expressed by the combination of all limitations is not made obvious compared to the prior art of record for the whole invention of those dependent claims, particularly with detecting distortions using envelope information and modifying a single-ended objective assessment to reflect the impact of the distortions on subjective assessment of quality. Certain assumptions that make the limitations clear have been considered for the claims, as described next or elsewhere in this Office action. The claims should also be rewritten to overcome any objections or rejections under 35 U.S.C. 112(2), especially as appearing in this Office action.

#### *Response to Amendment*

3. The 37 CFR 1.21(b)(1)(ii) requires markings to show all the changes relative to the immediate prior version of the paragraph. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived.

The Applicant is advised that a strike-through of the letter “s” is one example that cannot be easily perceived. If the Applicant prefers to avoid double brackets, the Examiner can suggest deletion and insertion of entire words or phrases, for example, “quality assessment ~~values~~ value for the speech” and “~~modifying an~~ modifying a single-ended”.

The Applicant's AMENDMENT, filed April 12, 2007, has been entered in full.

***Drawings***

4. The drawings are objected to under 37 CFR § 1.83(a) because they fail to clearly show significant features of the subject matter specified in the claims. See MPEP § 608.02(d). At a minimum, representation of the following features should be added to the drawings to show the claimed invention as a whole:

objective speech quality assessment values when known source speech or reconstructed source speech are unavailable (in claim 1 and others, as single-ended).

5. A permanent replacement sheet (a minimum being a black ink sketch suitable for publication) in compliance with 37 CFR 1.121(d) containing at least the corrected, substitute drawing for each figure being corrected is required in response to this Office action. Any amended, replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. Corrected drawing sheets may no longer be held in abeyance. REPLACEMENT SHEETS LESS THAN THE MINIMUM DESCRIBED ABOVE WILL NOT BE CONSIDERED A *BONA FIDE*

ATTEMPT TO PROVIDE A COMPLETE REPLY. See 37 C.F.R. § 1.121(d), § 1.81(d), § 1.85(a), and MPEP § 608.02 IV.

### *Specification*

6. The title is objected to because it is not sufficiently descriptive of the invention. A new title is required that is clearly indicative of the invention to which the claims are directed. See MPEP § 606.01. The Examiner suggests that the Applicant consider a title including these elements: "Method of Reflecting Time/Language Distortion in Single-Ended Objective Speech Quality Measurement."

7. The abstract is objected to under 37 C. F. R. § 1.72 because it does not describe the disclosure sufficiently, particularly the matter claimed as new. A cursory inspection of the abstract should inform readers of the nature and gist of the technical disclosure. See MPEP § 608.01(b). Appropriate correction is required. The following additional matter contained in the disclosure should be briefly mentioned:

single-ended, objective, speech quality assessment values, when known source speech or reconstructed source speech are unavailable (in claim 1 and others).

### *Claim Informalities*

8. Claim 21, and by dependency claims 22-34, are objected to under 37 CFR 1.75(a) because the meaning of the phrase "the distortion" (line 6) needs clarification. Because no one, particular distortion was previously set forth, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phase as --the distortions--.

9. Claim 22 is objected to under 37 CFR 1.75(a) because the meaning of the phrase "the single-ended objective speech quality assessment values" (line 2) needs clarification. Because not more than one value was previously recited, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --the single-ended objective speech quality assessment value--.

10. Claims 26-34 and 39 are objected to as being (directly or indirectly) dependent upon a rejected base claim. See MPEP § 608.01(n)V.

### ***Claim Rejections - 35 USC § 103***

#### **Hollier '188 and Hollier '083**

11. Claims 21-25 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollier [US Patent 5,794,188] (Hollier '188) in view of Hollier et al. [US Patent 6,119,083] (Hollier '083), both already of record.

12. Regarding claim 21, Hollier '188 [at column 2, lines 22-47] describes a method for objectively assessing speech quality by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

detecting distortions in an interval of activity using information [at column 9, line 63-column 10, line 33, as calculate a sum as an indication of the amount of distortion being total error activity and error entropy (distribution of error) in a sequence of bandpass values using error values and indicate whether it has passed a threshold];

modifying an objective quality assessment value associated with the activity to reflect the impact of the distortions on subjective quality assessment [at column 11, line 52-column 12, line 15, as convert the relationship between error activity and entropy and distortion to a prediction of subjective opinion scores of human listeners for the varying levels of distortion];



the information describes envelope [at column 8, lines 19-22, as band amplitude values of 20 signal passbands];

the activity and the quality assessment values describe speech [at column 4, lines 60-67, as the data comprises speech].

However, Hollier '188 [at column 9] only assesses quality by comparison using another signal, a signal representing the speech. In particular, Hollier '188 does not describe a single-ended speech quality assessment.

Hollier '083 [at column 4, lines 17-46] also determines and corrects objective values of speech distortion to reflect subjective values of speech distortion. In addition, Hollier '083 describes:

detecting distortions in an interval of activity [at column 8, lines 18-24, as classify the data to indicate that distortion is taking place];

use envelope information to detect it [at column 6, lines 63-64, as use spectral analysis as a model];

a single-ended objective quality assessment value associated with the activity to reflect the impact of the distortion [at column 8, lines 18-26, as a classification of the quality of the signal supplied to the source is defined by stored parameters that define a definition function that classifies the signal];

the objective assessment reflects the impact of the distortion on subjective quality assessment [at column 4, lines 17-20, as the measurement process estimates the effect which would be produce on the human sensory system];

the activity, the quality assessment, and the subjective quality are speech [at column 7, lines 44, as live speech traffic].

As indicated, Hollier '083 shows that a single-ended objective speech quality assessment value that reflects the impact of distortion on subjective speech quality assessment was known to artisans at the time of invention. Since Hollier '083 [at column 1, line 49-column 2, line 4] also

points out that it is desirable to carry out the tests using the live signals themselves being carried by the equipment when there is no way of obtaining a sample of the original signal, the reason that a person of ordinary skill in the art of speech quality assessment at the time of invention would have found it obvious to include the concepts described by Hollier '083, at least including the single-ended speech quality assessment value to determine error activity and entropy to convert to a prediction of subjective opinion scores rather than Hollier '188's comparison to a version of the original signal, is because Hollier '083 overcomes the problem of speech quality assessment when a representation of the original signal is not available at the point of measurement.

13. Regarding claim 22, Hollier '188 also describes:

determining the objective values for the activity [at column 11, lines 11-18, as summing the error activity and error entropy values to form a measure of distortion], and

Hollier '083 also describes:

determining single-ended objective values for the activity [at column 8, lines 18-26, as a derive a classification of the quality of the signal supplied to the source is defined by stored parameters that define a definition function that classifies the signal].

14. Regarding claim 23, Hollier '188 also describes:

the distortions are impulsive noise (or other) [at column 5, lines 58-60-61, as noise will be noise bursts].

15. Regarding claim 24, Hollier '083 describes:

detecting distortion includes determining a distortion type [at column 3, lines 52-53, as generating a classification of severity and type of distortion].



16. Regarding claim 25, Hollier '083 also describes:

the distortion type is determined [at column 3, lines 52-53, as generating a classification of type of distortion].

Hollier '188 also describes:

the distortion type is impulsive noise [at column 5, lines 58-60-61, as noise will be noise bursts];

the information indicates that the activity can be perceived by a listener to be noise [at column 10, lines 24-27, as the error activity and error entropy correspond to a perceived level of distortion found by the listener];

the interval is of a duration long enough to be perceived by a listener [at column 10, lines 25-29, as a period of time of error will be found by the listener];

the interval is not too long for a short burst [at column 5, lines 53-60, as the test signal has a noise burst];

the listener is human [at column 11, line 53, as human listeners provided measurements].

17. Claim 35 sets forth limitations similar to claim 21. Hollier '188 and Hollier '083 describe and make obvious the limitations as indicated there. Hollier '188 also describes:

means for detecting and modifying [at column 7, lines 39-48, as the analysis unit comprising a processor and instruction sequences for the processor].

18. Regarding claim 36, Hollier '188 also describes:

determining the objective values without accounting for distortions for the activity [at column 11, lines 11-18, as summing the error activity and error entropy values over the whole duration of the signal to form a measure of distortion];

means for the determining [at column 7, lines 39-48, as the analysis unit comprising a processor and instruction sequences for the processor].

19. Claim 37 sets forth additional limitations similar to limitations set forth in claim 23.

Hollier '188 also describes the additional limitations as indicated there.

20. Claim 38 sets forth additional limitations similar to limitations set forth in claim 24.

Hollier '188 and Hollier '083 describe and make obvious the additional limitations as indicated there. Hollier '188 also describes:

means for detecting and modifying [at column 7, lines 39-48, as the analysis unit comprising a processor and instruction sequences for the processor].

### ***Response to Arguments***

21. The prior Office action, mailed November 13, 2006, objects to the claims, and rejects claims under 35 USC § 102 and § 103, citing Hollier '188 and Hollier '083. The Applicant's arguments and changes in AMENDMENT, filed April 12, 2007, have been fully considered with the following results.

22. With respect to objection to the claims as dependent upon a rejected base claim, the claims remain dependent upon rejected base claims. This objection is maintained.

23. With respect to rejection of claims under 35 USC § 102, citing Hollier '188 alone, the changes entered by amendment include the objective speech quality assessment value being single-ended.

The reference Hollier '188 does not explicitly describe that limitation. Accordingly, the rejections are removed. The Applicant's assertions with respect to Hollier '188 have been considered, but they are moot in view of the new claim element. Please see new grounds of

rejection applied to address the new claim element: single-ended objective speech quality assessment value.

24. With respect to rejection of claims under 35 USC § 103, citing Hollier '188 and Hollier '083 in combination, the Applicant's arguments appear to be as follows:

The Applicant's argument appears to be that neither Hollier '188 nor Hollier '083 describes modifying a single-ended objective speech quality assessment value. This argument is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Hollier '188 and Hollier '083, when filtered through the knowledge of one skilled in the art of speech quality assessment, combine to teach or suggest that modifying the single ended speech quality assessment value to reflect the impact of distortion on subjective speech quality assessment. See the rejections of claim 21, where the claim elements are enumerated, for example. Neither Hollier '188 nor Hollier '083 should be read without reference to the other because the question is whether the hypothetical person of ordinary skill in the relevant art, familiar with all that the references disclose, would have found it obvious to make a structure corresponding to what is claimed. The question is not simply whether either cited reference suggests within its four corners using the other reference's disclosed subject matter, but rather what they suggest as a whole to one versed in the art.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejections are maintained.

### ***Conclusion***

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

26. Any response to this action may be mailed to:

**Mail Stop AF**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**or faxed to:**

(571) 273-8300, (please mark "EXPEDITED PROCEDURE"; for formal communications and for informal or draft communications, additionally marked "INFORMAL" or "DRAFT")

Some patent correspondence and/or fees may be submitted using the Office's electronic filing system (EFS). See the Office's Internet Web site for additional information, for example [http:// www. USPTO. gov/ ebc/ ebc\\_ faqs. htm](http://www.USPTO.gov/ebc/ebc_faqs.htm).

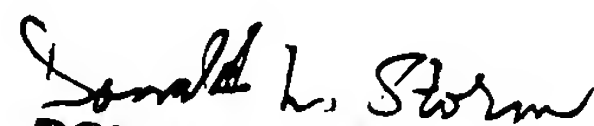
Some patent correspondence may delivered by hand or delivery services, other than the USPS, addressed as follows and brought to U.S. Patent and Trademark Office, Customer Service Window, **Mail Stop AF**, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Division 2626, whose telephone number is

(571) 272-7614. The examiner can normally be reached on weekdays between 7:00 AM and 3:30

PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: [ebc@uspto.gov](mailto:ebc@uspto.gov). For general information about the PAIR system, see <http://pair-direct.uspto.gov>. If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
DONALD L. STORM  
PRIMARY PATENT EXAMINER

May 7, 2007